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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE
WASHINGTON, D. C.

Forest Insect Laboratory
341 Giannini Hall, U. C.
Berkeley 4, California

June 19, 1947

Mr. Albert H. Elkington
1590 Portola Drive
San Francisco, Calif.

Dear Mr. Elkington:

In response to your request, I am writing you this letter to confirm the discussion which I had with you and Mr. Morris today.

The larvae which Mr. Morris found emerging from the timbers in his house is one of the round-headed borers Family Cerambycidae, most likely Criocephalus productus or a closely related species - all of which do similar work.

The adult beetle, which is black and from 1 to 1½ inches in length with long antennae, lays eggs only on dead fir and pine killed by fire, insects or other causes, usually in the first year or so following death and while the bark is still intact. The larvae, on hatching, burrow into the sapwood and make winding mines filled with boring dust. It takes several years for the larvae or grubs to reach full growth, at which time they are approximately 1½ inches in length. Then they make large open pupal cells that usually extend several inches into the heartwood. Full growth and construction of the pupal cell takes place from 3 to 6 years after the tree was killed. On emerging the adult beetles make a clean cut oval hole about ½ inches across the long axis.

Certain characteristics of attack by this species are of importance. As far as is known, it only attacks fir and pine and possibly other softwood conifers such as hemlock and spruce. It does not attack cedar, redwoods or any of the hardwoods. It has to have freshly killed trees for its attack, usually with the bark still on, but in rare cases it may lay its eggs on the moist, exposed sapwood of recently killed trees. It does not lay eggs on dry finished wood and hence is no threat to finished lumber.

In the last ten years or so, occurrence of the larvae or grubs of this beetle in the framing, sheeting and construction timbers of new houses has become quite common due to the fact that a great deal of fire-killed and insect-killed timber has been cut by the sawmills of the west coast and sent to market as green or air-dried lumber without kiln-drying (which would have killed the grubs). The unhappy larvae, thus carried away from their native haunts, continue to develop within the cramped quarters of the board within which they have been isolated, but as this board dries out they find its nutrients dry and unpalatable. Thus some undernourished grubs bore out to seek better fodder, but find themselves

out in a dry house instead and hence are worse off than before. Once out of their holes, they can't get back in, nor is it possible for an immature grub to start a new attack because in order to use his mandibles, he has to have something to push against. (In his own burrow, he swells out his sides and thus gets leverage to work his pincers). Larvae that are nearly full grown go on to maturity and come out as a full grown black beetle.

Since the life cycle of these insects is completed within 3 to 6 years from the time the first eggs are laid on the dead trees in the woods, all trouble from grubs or beetles coming out of finished lumber in houses is over by that time, and no new infestation can occur. In this respect these beetles are very different from termites, or powder post beetles whose activities may continue year after year indefinitely.

Structually, the amount of damage done by a few worm holes in studding or sills is negligible. All activity of these worms is definitely limited to the few years that it takes them to complete their life cycle or starve out due to dryness.

Therefore, our recommendation to owners of new houses bothered with these beetles boring through floors, casings or walls in order to get out of their cramped quarters is to repair the damage by filling up the holes and not to go to the trouble or expense of trying to kill them through various chemical treatments, fumigation or what not. Most of these methods are ineffective anyway; and the trouble is definitely self-limiting.

Further reference to the work of this group of wood boring beetles may be found in the following bulletins of this Department:

"Deterioration of Fire-Killed Douglas-fir" by J. W. Kimmey and R. L. Furniss. Tech. Bull. No. 851

"Protection of Log Cabins, Rustic Work and unseasoned wood from injurious insects" by R.A. St.George. Farmers Bull. No. 1582

"Defects in Timber Caused by Insects" by Thomas E. Snyder. Dept. Bull. No. 1490.

Very truly yours,

F. P. Keen

F. P. Keen
Entomologist, In Charge

cc: Mr. James Morris